

WHAT IS CLAIMED IS:

1. An image forming apparatus, comprising:  
a first image carrier that transfers an image to a first surface of  
a recording medium;  
5 a second image carrier that transfers an image to a second  
surface of the recording medium; and  
a conveying unit that directly conveys the recording medium, to  
which the image has been transferred by the second image carrier, from  
the second image carrier to a fixing unit, wherein a conveying speed of  
10 the recording medium at the fixing unit is equal to or lower than a  
conveying speed of the recording medium on the second image carrier.
2. The image forming apparatus according to claim 1, wherein the  
conveying speed of the recording medium at the fixing unit is 90 to  
15 100 % of the conveying speed of the recording medium on the second  
image carrier.
3. The image forming apparatus according to claim 1, wherein the  
second image carrier is made of heat-resistant material.  
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4. The image forming apparatus according to claim 3, wherein the  
heat-resistant material is polyimide.

5. The image forming apparatus according to claim 1, further comprising a cooling unit that cools the second image carrier.

6. The image forming apparatus according to claim 5, wherein the  
5 cooling unit includes a heat pipe.

7. The image forming apparatus according to claim 1, further comprising a cleaning unit that cleans toner remaining on the second image carrier while the toner melts due to heat from the fixing unit.

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8. The image forming apparatus according to claim 7, wherein the cleaning unit includes a roller having a surface roughness greater than a surface roughness of the second image carrier, wherein the roller is moveably supported so as to touch the second image carrier or  
15 separate from the second image carrier.

9. The image forming apparatus according to claim 8, wherein the surface roughness of the second image carrier is 3.5 micrometers or less and the surface roughness of the roller is 3.5 micrometers or more.

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10. The image forming apparatus according to claim 7, further comprising  
a supporting unit that moveably supports the cleaning unit in such a manner that the cleaning unit touches the second image carrier  
25 or separates from the second image carrier; and

a movement controlling unit that controls the supporting unit,  
wherein when there is an image on the second image carrier, the  
movement controlling unit controls the supporting unit in such a manner  
that the cleaning unit separates from the second image carrier.

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11. The image forming apparatus according to claim 1, wherein the  
first image carrier is an electrophotographic photoreceptor, and the  
second image carrier is a belt made of a material having a surface  
resistivity of a range from  $10^5$  to  $10^{12}$   $\Omega/\text{sq}$ .

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12. The image forming apparatus according to claim 1, wherein a  
toner releasing layer is formed on the second image carrier.

13. The image forming apparatus according to claim 1, wherein the  
15 toner releasing layer is a layer of Teflon (trade mark).

14. The image forming apparatus according to claim 1, wherein  
there is a gap between a position at which a recording medium on the  
second image carrier is transferred to the fixing unit and a position at  
20 which the recording medium is received in the fixing unit, and a width of  
the gap is 60 millimeters or less.

15. The image forming apparatus according to claim 1, wherein the  
conveying unit conveys the recording medium vertically with respect of  
25 the ground so that the recording medium does not receive the effect of

the gravity.

16. An image forming apparatus, comprising:
- a first image carrier having a surface for carrying a toner image  
5 formed through an electrophotographic process;
  - a second image carrier on which the toner image on the first  
image carrier is transferred, and that conveys a recording medium;
  - a first transfer unit that transfers the toner image from the first  
image carrier to the second image carrier and to a first surface of the  
10 recording medium conveyed by the second image carrier;
  - a second transfer unit that transfers the toner image from the  
second image carrier to a second surface of the recording medium  
conveyed by the second image carrier;
  - a fixing unit disposed on downstream side of the second transfer  
15 unit with respect to direction of conveyance of the recording medium,  
the fixing unit including
    - a fixing roller having a heat source;
    - a pushing roller that pushes the fixing roller; and
    - a support roller, wherein a belt is wound around between  
20 the support roller and the pushing roller, and the support roller rotates  
in the same direction as that of the pushing roller to rotate the belt,  
wherein the fixing unit fixes the toner image on the recording medium;  
and
  - a guide unit that conveys the recording medium from the second  
25 image carrier toward the fixing unit, that brings the recording medium

into contact with the belt wherein an angle is set to 60 degrees or less,  
the angle being formed between a direction of conveying the recording  
medium by the second image carrier and a moving direction of a portion  
of the belt in a zone from the support roller toward the pushing roller,  
5 and that guides the recording medium to a nip part between the fixing  
roller and the pushing roller.

17. The image forming apparatus according to claim 16, wherein the  
angle is 30 degrees.

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18. The image forming apparatus according to claim 16, wherein the  
guide unit is controlled so that a conveying speed of the recording  
medium by the second image carrier is set to be equal to a conveying  
speed of the belt, or a conveying speed of the recording medium is set  
15 to be faster than that of the belt.

19. The image forming apparatus according to claim 16, further  
comprising a unit that produces a potential difference between the belt  
and paper so that the paper adheres to the belt by electrostatic force.

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20. The image forming apparatus according to claim 19, further  
comprising a charger that electrically charges the belt.

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21. The image forming apparatus according to claim 20, wherein the charger applies an electric charge of a reverse polarity, with respect to a polarity of toner, to the belt.
- 5 22. An image forming system, comprising:  
an image forming apparatus including  
a first image carrier that transfers an image to a first  
surface of a recording medium;  
a second image carrier that transfers an image to a  
10 second surface of the recording medium; and  
a conveying unit that conveys the recording medium, to  
which the image has been transferred by the second image carrier, from  
the second image carrier to a fixing unit, wherein a conveying speed of  
the recording medium at the fixing unit is equal to or lower than a  
15 conveying speed of the recording medium on the second image carrier;  
an information processing unit connected to the image forming  
apparatus through a communication means; and  
an image formation controlling unit that performs controls over  
image formation including transmission of data for image formation from  
20 the information processing unit to the image forming apparatus.